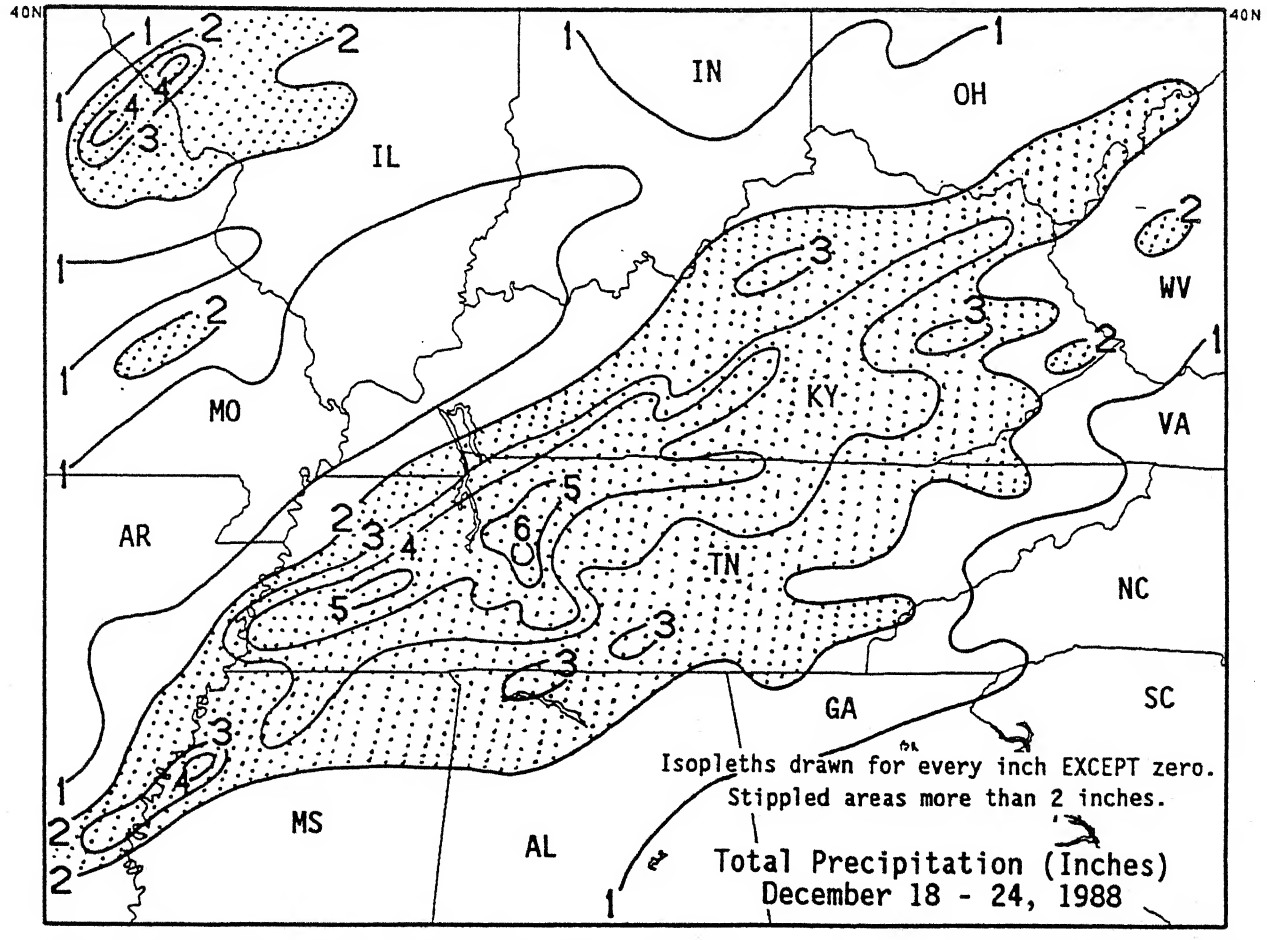
CLIMATE ANALYSIS CENTER

WEEKLY CLIMATE BULLETIN

No. 88/52 Washington, DC December 24, 1988



STORMY WEATHER HIT MANY AREAS OF THE NATION LAST WEEK AFTER A GENERALLY DRY AND TRANQUIL FIRST HALF OF DECEMBER. A STRONG COLD FRONT TRIGGERED SEVERE THUNDERSTORMS THAT DROPPED BETWEEN 2 AND 6 INCHES OF RAIN ON MOST OF THE TENNESSEE AND OHIO VALLEYS.

UNITED STATES DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NATIONAL WEATHER SERVICE - NATIONAL METEOROLOGICAL CENTER

WEEKLY CLIMATE BULLETIN

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This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief, concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

Highlights of major global climatic events and anomalies.
U.S. climatic conditions for the previous week.
U.S. apparent temperatures (summer) or wind chill (winter).
Global two-week temperature anomalies.
Global four-week precipitation anomalies.
Global monthly temperature and precipitation anomalies.
Global three-month precipitation anomalies (once a month).
Global twelve-month precipitation anomalies (every 3 months).
Global temperature anomalies for winter and summer seasons.
Special climate summaries, explanations, etc. (as appropriate).

Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Center via the Global Telecommunication System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.

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GLOBAL CLIMATE HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF DECEMBER 24, 1988

[Approximate duration of anomalies is in brackets]

1. Northwestern Canada, Eastern Alaska:

ABNORMALLY MILD WEATHER OCCURS.

Temperatures were as much as 14.8°C (26.6°F) above normal as unseasonably mild temperatures developed [2 weeks].

2. Northeastern U.S. and Canada:

FRIGID CONDITIONS ABATE.

Near to slightly above normal temperatures were observed across the region during the past week [Ended at 2 weeks].

3. Argentina, Paraguay, and Brazil:

DRYNESS DIMINISHES.

Portions of northern Argentina and southern Brazil measured up to 175.0 mm (6.89 inches) of precipitation last week; however, Paraguay and a small part of north-central Argentina remained dry [26 weeks].

4. Central Europe:

WET CONDITIONS DEVELOP.

Heavy precipitation fell this week with amounts up to 162.6 mm (6.40 inches) reported in West Germany [5 weeks].

5. Eastern Europe:

TEMPERATURES MODERATE IN SOUTHERN AREA.

Extremely cold conditions were limited to northern Finland (maximum departure of -11.7°C (-21.1°F)) as seasonal temperatures occurred in much of the European Soviet Union [Ended at 8 weeks].

6. Southeastern Europe, Northern and Western Africa:

COLD AIR DIVES SOUTH.

Cold weather prevailed over southeastern Europe while cooler conditions persisted over much of northern and western Africa with temperatures as much as 9.4°C (16.9°F) and 8.6°C (15.5°F) below normal, respectively [2 weeks].

7. Siberia:

MILD CONDITIONS LINGER.

The late autumn warm spell continued into winter as temperatures averaged up to 14.6°C (26.3°F) above normal [11 weeks].

8. Eastern China and Taiwan:

REGION REMAINS DRY.

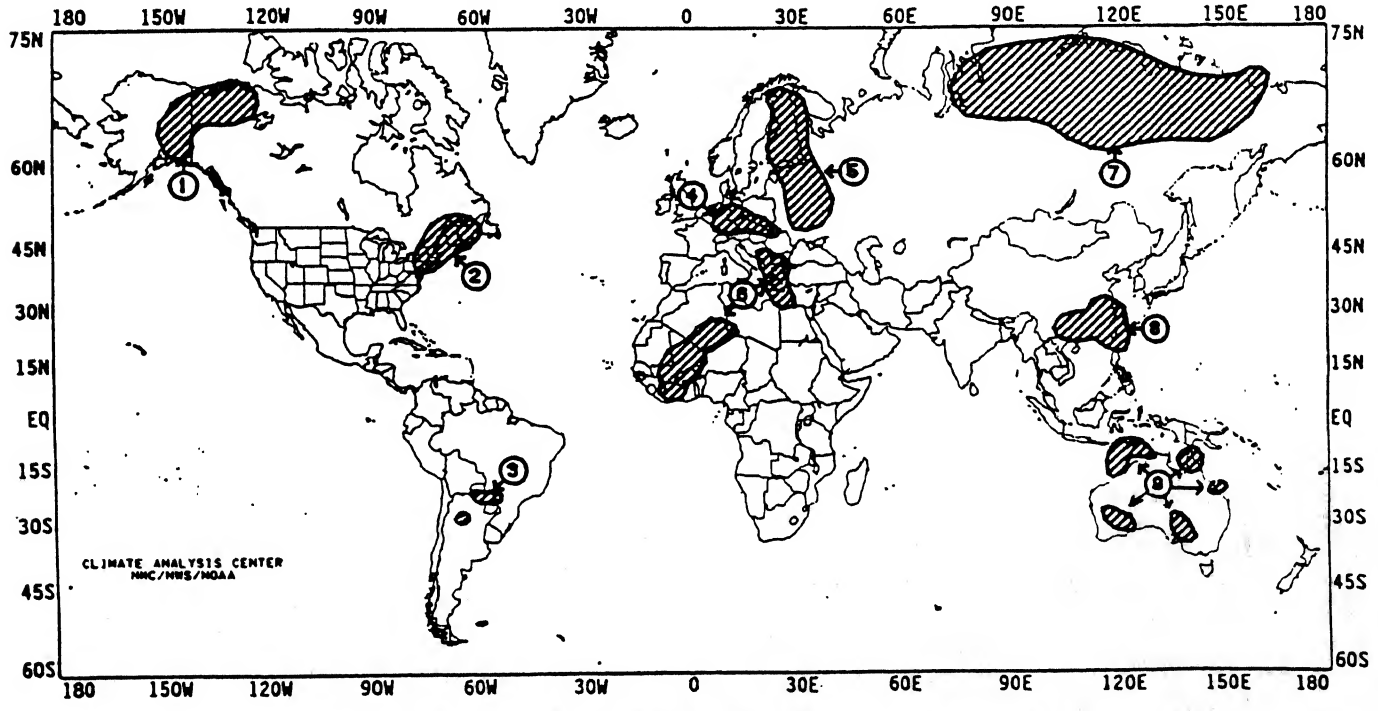
Little or no precipitation fell on the region last week [13 weeks].

9. Australia:

WET SPELL PROLONGED.

Up to 127.4 mm (5.02 inches) of rain was measured in parts of northern Australia with lesser amounts recorded in interior Western Australia and along the northeastern Australian coast [8 weeks].

(NOTE: Text precipitation amounts and temperature departures are this week's values).



Approximate locations of the major anomalies and events described above are shown on this map. See other maps in this Bulletin for current two week temperature anomalies, four week precipitation anomalies, longer term anomalies, and other details.

UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

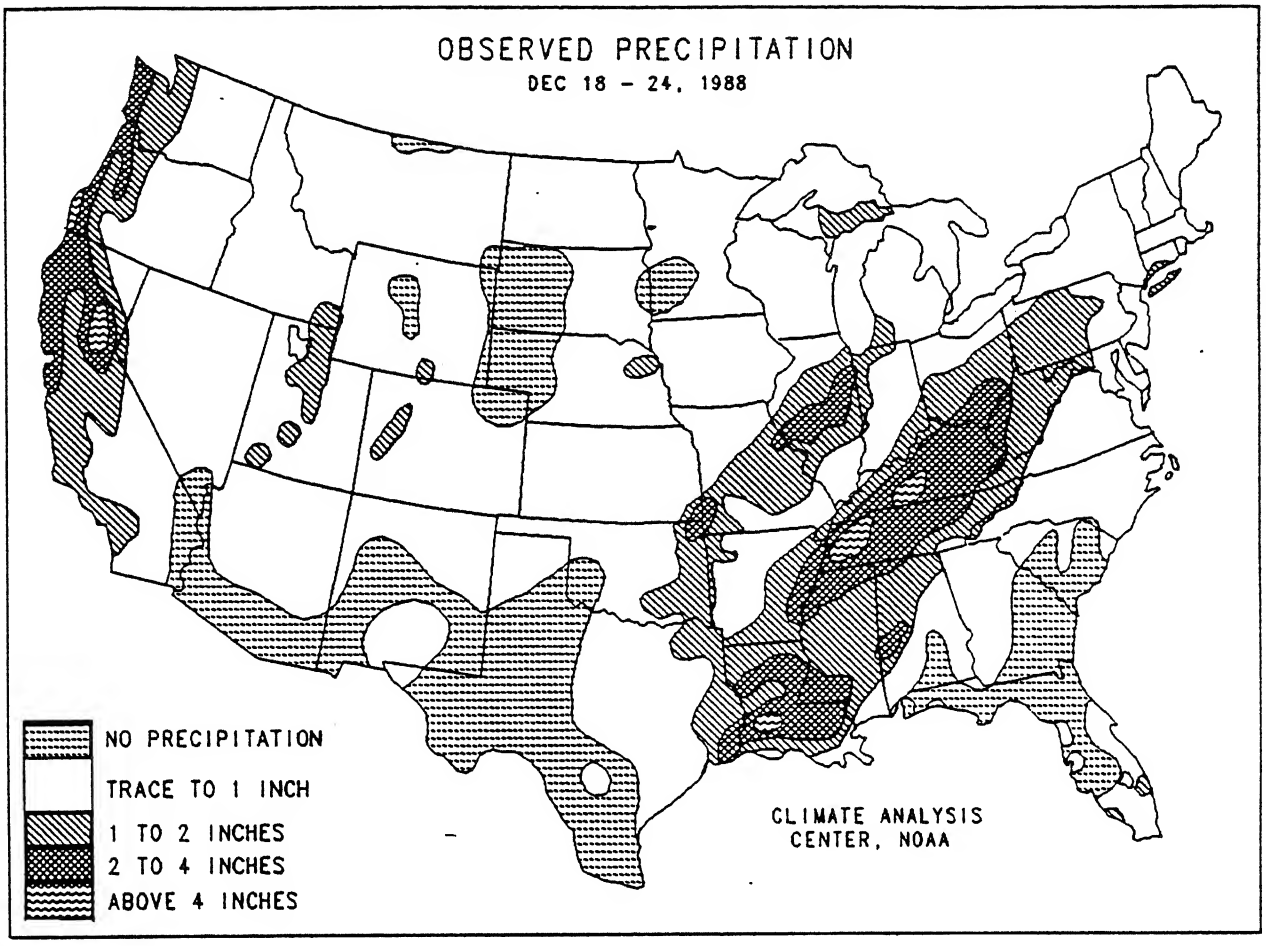
FOR THE WEEK OF DECEMBER 18 THROUGH DECEMBER 24, 1988.

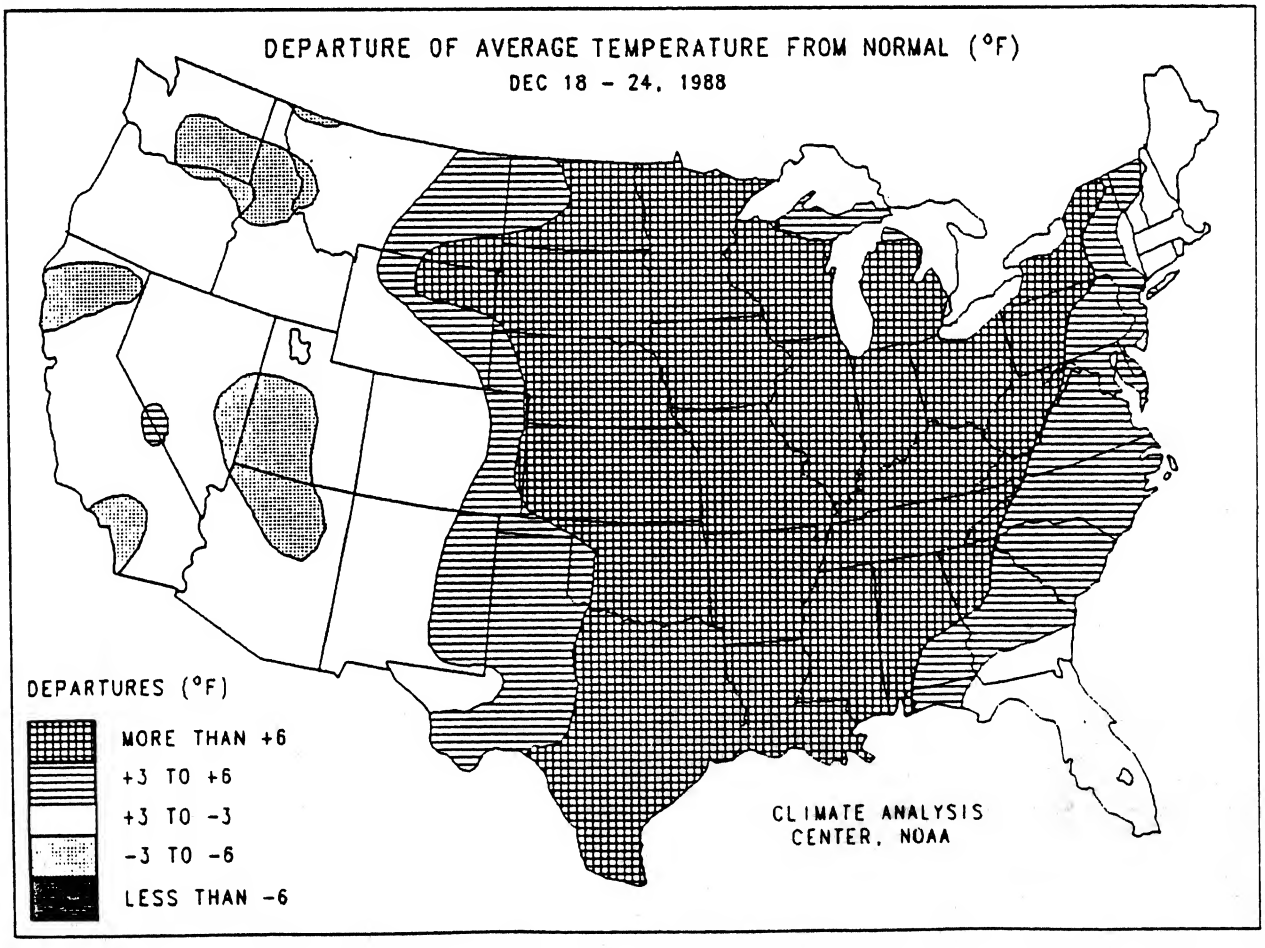
Changes in the upper-air weather pattern allowed series of storms to enter the Pacific Coast and ve rapidly eastward across the United States, pping moderate to heavy precipitation on much of e Far West and eastern half of the nation after ee weeks of generally dry conditions in the lower states. According to the River Forecast Centers, avy precipitation (up to 10.5 inches) was measured ong most of coastal Washington, Oregon, and alifornia and in portions of the Cascade and Sierra evada Mountains (see Figure 1). Farther east, a rong cold front triggered severe and sometimes olent thunderstorms, a few spawning tornadoes in nnessee and Louisiana, throughout the middle and wer Mississippi, lower Ohio, and Tennessee Valleys. he greatest rainfall amounts (between 2 and 6 inches) ccurred from southeastern Arkansas northeastward southern Ohio (see front cover). Between 2 and inches of rain fell on southwestern Mississippi and ouisiana, while thunderstorms left behind 2 to 3 nches of rain from northeastern Oklahoma ortheastward to central Illinois. Elsewhere, moderate heavy precipitation was observed in sections of he central Rockies, south-central Alaska, and Hawaii. ight to moderate precipitation totals were found in nuch of the western third of the country, in parts of he northern and central Great Plains, and throughout he eastern half of the U.S. with the exception of the astern Gulf and southern Atlantic Coasts. Little or o precipitation fell on the southern thirds of the Intermountain West, Rockies, and Great Plains, on portions of the central High Plains, and from the Florida Panhandle northeastward to eastern North Carolina.

A deep trough of low pressure anchored over the Rockies brought unseasonably mild air to the eastern two-thirds of the nation, replacing abnormally cold conditions that prevailed during the previous 2 1/2 weeks east of the Mississippi River. Spring-like weather, with highs exceeding 60°F, was common in the Great Plains, the middle Mississippi, Tennessee, and Ohio Valleys, and the mid-Atlantic, while readings in the seventies were reported in the southern Great Plains and Southeast (see Figure 2). The greatest positive temperature departures (between +10° and +13°F) were observed throughout the Great Plains and the Mississippi, Tennessee, and Ohio Valleys (see Table 2). Farther north, temperatures averaged up to 27°F above normal as mild weather persisted in Alaska for the third consecutive week. Below normal temperatures were confined to the Far West as the greatest negative temperature departures (between -3° and -9°F) were recorded in the Pacific Northwest, the northern and southern coasts of California, and the southern half of the Intermountain West (see Table 3). With unseasonably mild weather across much of the U.S., subzero readings were limited to higher elevations of the Rockies, the northern Great Plains, upper Midwest, and northern New England (see Figure 3).

TABLE 1. Selected stations with two or more inches of precipitation for the week.

Station	Amount(In)	Station	Amount(In)
Kokee, Kauai, HI	5.61	Quillayute, WA	2.70
North Bend, OR	5.30	London/Corbin, KY	2.67
Bowling Green, KY	4.91	Kodiak, AK	2.57
Jackson, TN	4.66	Huntington, WV	2.54
Memphis NAS, TN	4.57	Muscle Shoals, AL	2.50
Sacramento/Mc Clellan AFB,CA	3.82	Joplin, MO	2.49
Lafayette, LA	3.79	San Bernardino/Norton AFB,CA	2.42
Eugene, OR	3.57	Redding, CA	2.41
Jackson, KY	3.33	Adak, AK	2.39
Eureka, CA	3.23	Sacramento/Mather AFB, CA	2.26
Hopkinsville/Campbell AAF,KY	3.19	Springfield, IL	2.23
San Fransisco, CA	3.13	Sacramento, CA	2.23
Port Arthur, TX	3.09	Astoria, OR	2.23
Baton Rouge, LA	2.93	McComb, MS	2.21
Lexington, KY	2.92	Fairfield/Travis AFB, CA	2.15
New Orleans/Moisant, LA	2.86	Charleston, WV	2.02
Crossville, TN	2.84	Parkersburg/Wood Co., WV	2.01
Nashville, TN	2.80	Hilo/Lyman, Hawaii, HI	2.00
Memphis, TN	2.75		


OBSERVED PRECIPITATION
DEC 18 - 24, 1988
NO PRECIPITATION
TRACE TO 1 INCH
1 TO 2 INCHES
2 TO 4 INCHES
ABOVE 4 INCHES
CLIMATE ANALYSIS
CENTER, NOAA


DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)
DEC 18 - 24, 1988
DEPARTURES (°F)
MORE THAN +6
+3 TO +6
+3 TO -3
-3 TO -6
LESS THAN -6
CLIMATE ANALYSIS
CENTER, NOAA

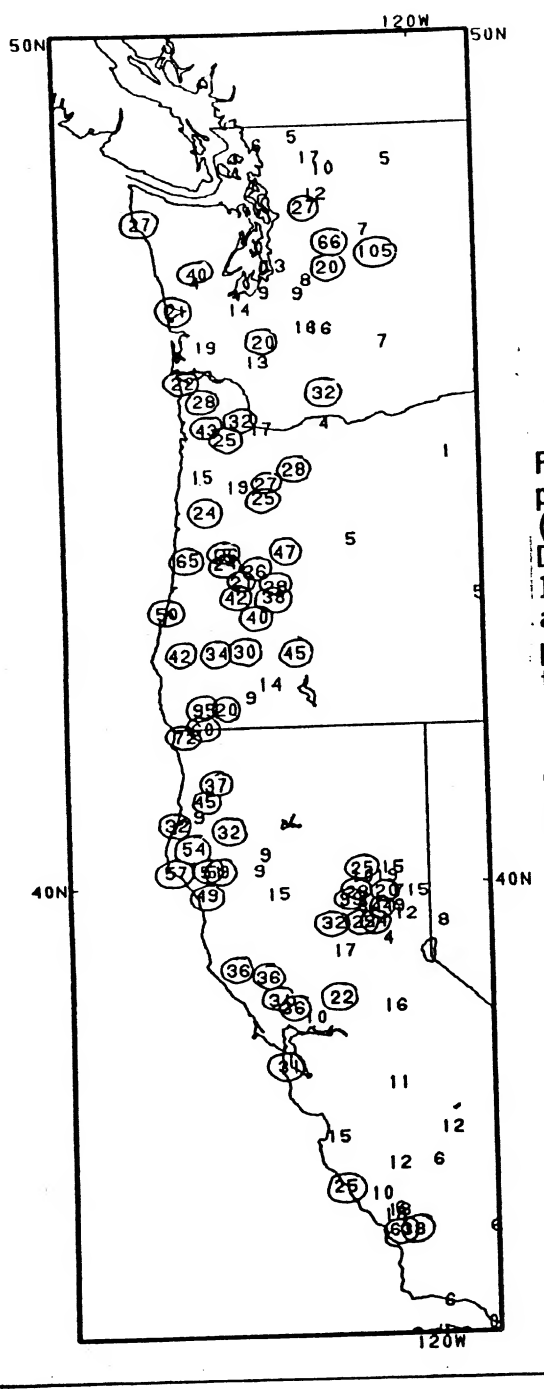


Figure 1. Total precipitation (inches) during Dec. 18 - 24, 1988. Station amounts are plotted in tenths of inches (e.g. 47 = 4.7 inches), and circled totals are greater than 2.0 inches.

TABLE 3. Selected stations with temperatures averaging 3.0°F or more BELOW normal for the week.

Station	TDepNml	AvgT(°F)
Yakima, WA	-8.6	22.0
Wenatchee, WA	-7.4	23.0
Redding, CA	-6.0	40.4
Delta, UT	-5.7	22.9
Walla Walla, WA	-5.0	30.4
San Bernardino/Norton AFB, CA	-4.7	47.5
Burbank/Hollywood, CA	-4.7	49.6
Yakutat, AK	-4.3	21.6
Sexton Summit, OR	-4.3	31.8
Flagstaff, AZ	-4.1	24.8
Lewiston, ID	-4.1	30.4
Caliente, NV	-4.0	28.9
Ukiah, CA	-4.0	42.3
Missoula, MT	-3.8	20.1
Ely, NV	-3.8	21.4
Los Angeles, CA	-3.8	52.5
Burns, OR	-3.4	23.2
Mt. Shasta, CA	-3.4	31.1
Ketchikan, AK	-3.4	31.6
Long Beach, CA	-3.4	52.7
Meacham, OR	-3.2	25.7
San Diego, CA	-3.2	54.1
Cedar City, UT	-3.1	27.0
Santa Maria, CA	-3.1	47.8
Blythe, CA	-3.1	49.8

TABLE 2. Selected stations with temperatures averaging 11.0°F or more ABOVE normal for the week.

Station	TDepNml	AvgT(°F)	Station	TDepNml	AvgT(°F)
McGrath, AK	+26.7	15.6	Mason City, IA	+11.7	29.0
Fairbanks, AK	+21.5	9.7	Concordia, KS	+11.6	41.2
Unalakleet, AK	+17.3	17.8	Springfield, IL	+11.6	40.4
Bethel, AK	+17.2	20.9	Lincoln, NE	+11.6	36.2
Big Delta, AK	+15.9	9.9	International Falls,MN	+11.6	17.1
Ottumwa, IA	+13.3	38.1	Nashville, TN	+11.5	51.2
Kotzebue, AK	+13.1	8.0	Kansas City/Muni., MO	+11.5	43.8
Northway, AK	+13.0	-6.4	Fargo, ND	+11.5	21.9
Beeville NAS, TX	+12.8	68.1	Quincy, IL	+11.4	39.2
Bettles, AK	+12.8	3.3	Burlington, IA	+11.4	37.9
Waterloo, IA	+12.7	32.5	Tulsa, OK	+11.3	49.5
Norfolk, NE	+12.6	34.7	Madison, WI	+11.3	31.9
Gulkana, AK	+12.6	4.8	Aberdeen, SD	+11.3	25.2
St. Louis, MO	+12.5	45.1	Salina, KS	+11.2	42.0
Des Moines, IA	+12.5	36.2	Topeka, KS	+11.2	41.4
Peoria, IL	+12.4	38.4	North Omaha, NE	+11.2	36.6
King Salmon, AK	+12.4	23.3	Cedar Rapids, IA	+11.2	34.1
Sioux City, IA	+12.1	33.3	Rockford, IL	+11.2	34.0
Rochester, MN	+12.1	27.3	Louisville, KY	+11.1	46.8
Sioux Falls, SD	+12.0	29.6	La Crosse, WI	+11.1	30.4
Alice, TX	+11.9	68.6	Memphis, TN	+11.0	53.1
Moline, IL	+11.9	36.3	Valdez, AK	+11.0	29.3
McAllen, TX	+11.8	71.6	Minneapolis, MN	+11.0	27.7
Evansville, IN	+11.7	45.7	Iliamna, AK	+11.0	23.4

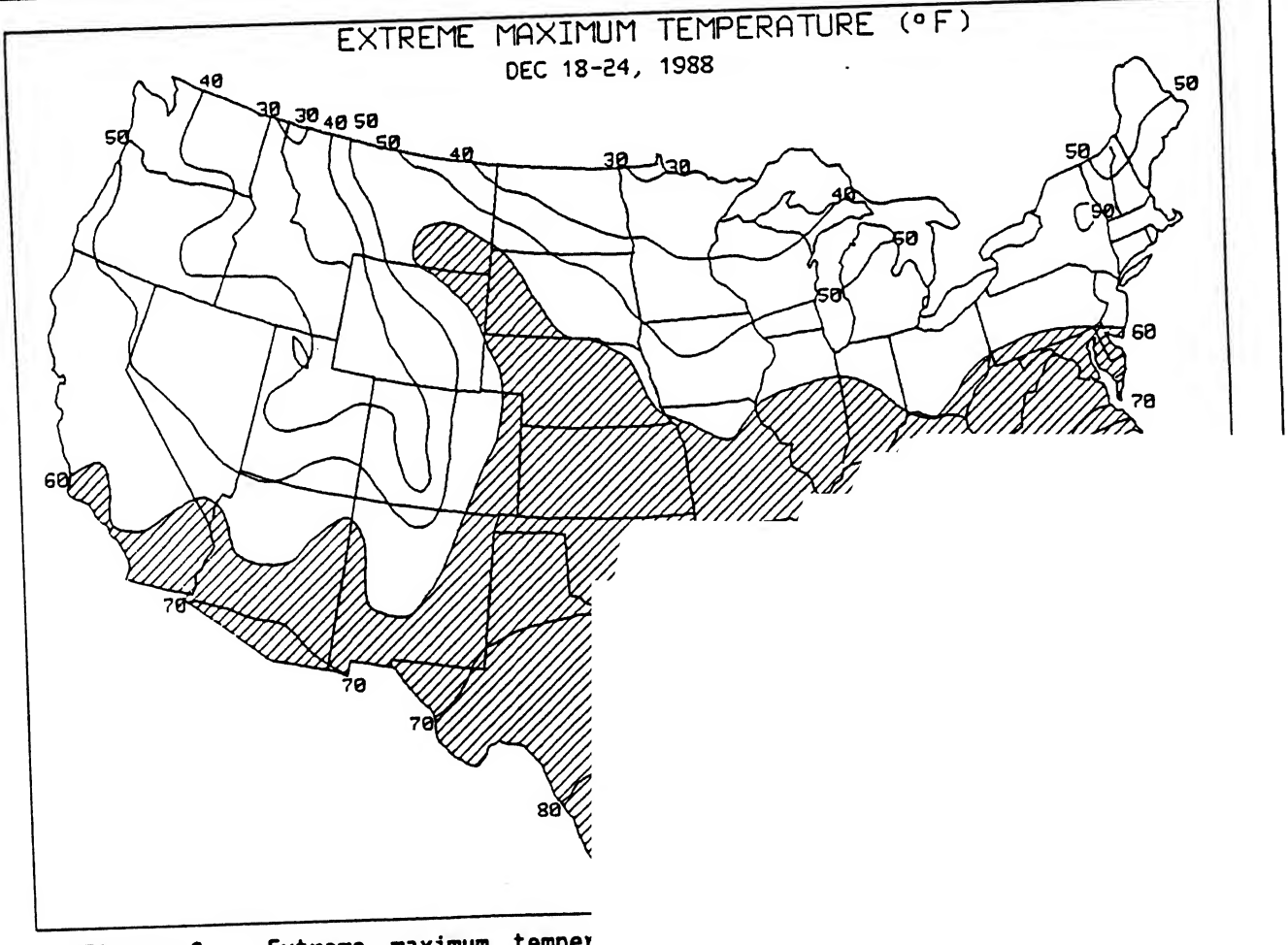
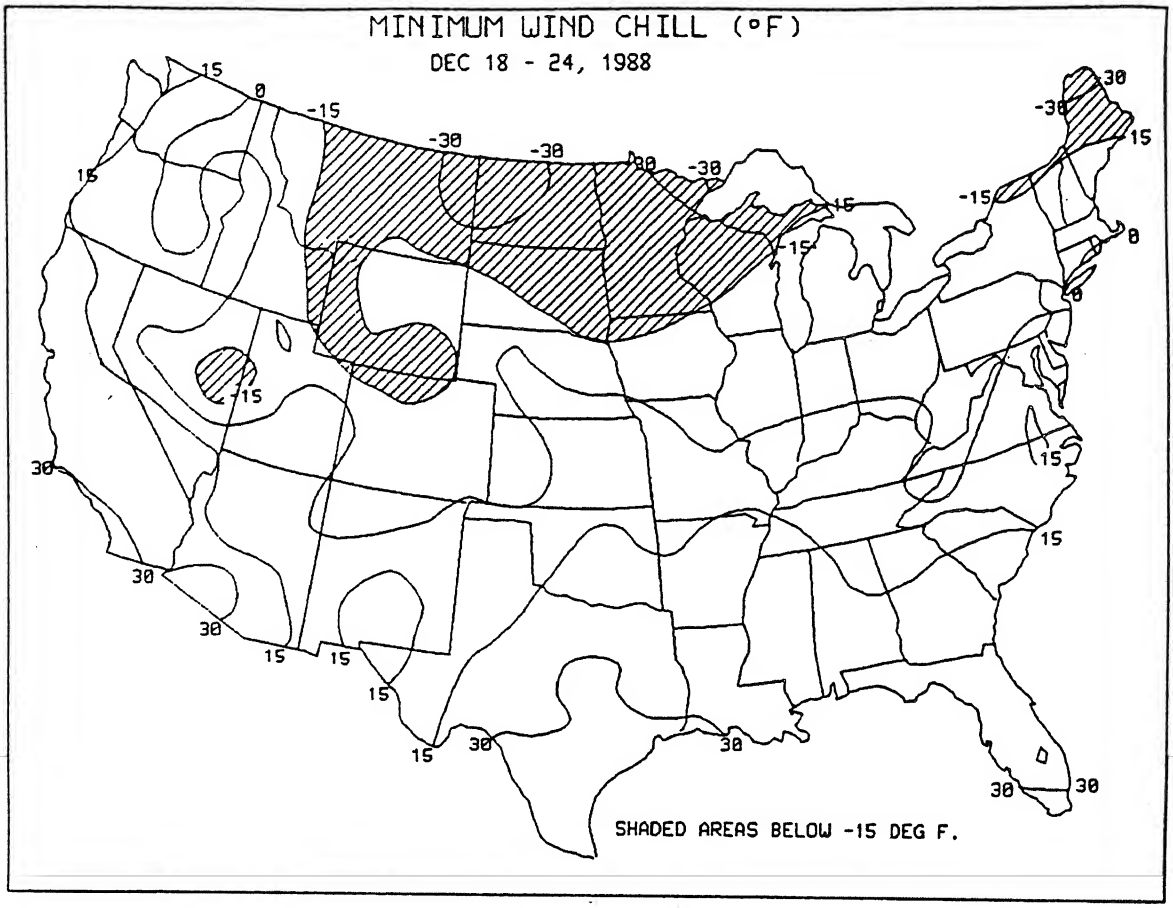


Figure 2. Extreme maximum temper
Shaded areas are above 60°F. Unseas
eastern two-thirds of the nation las
mid-Spring.



An intensifying low pressure center in the upper Midwest brought low temperatures, gusty winds, and dangerous wind chills to portions of the northern Great Plains and upper Midwest (top), while subzero readings were confined to the northern Great Plains, upper Midwest, and northern New England as milder air covered much of the eastern two-thirds of the nation (bottom).

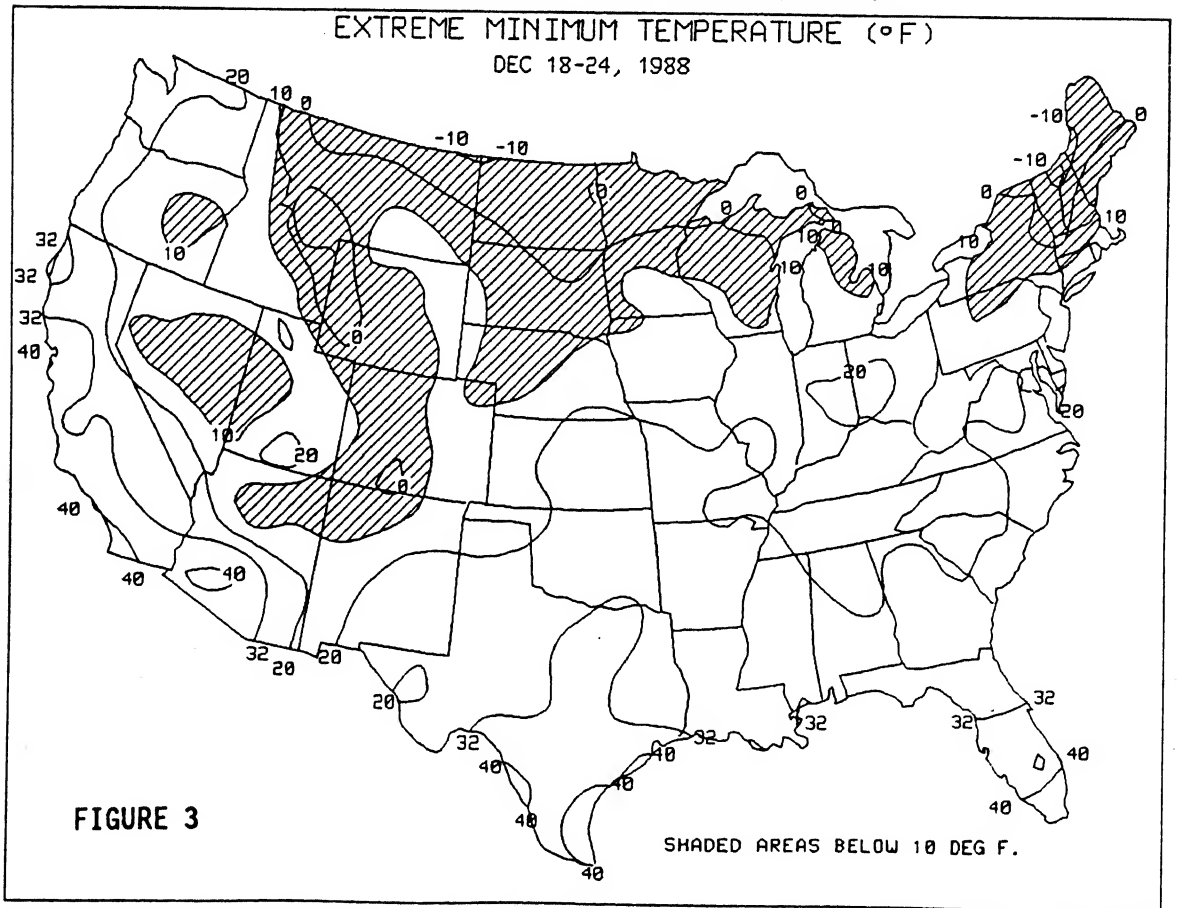
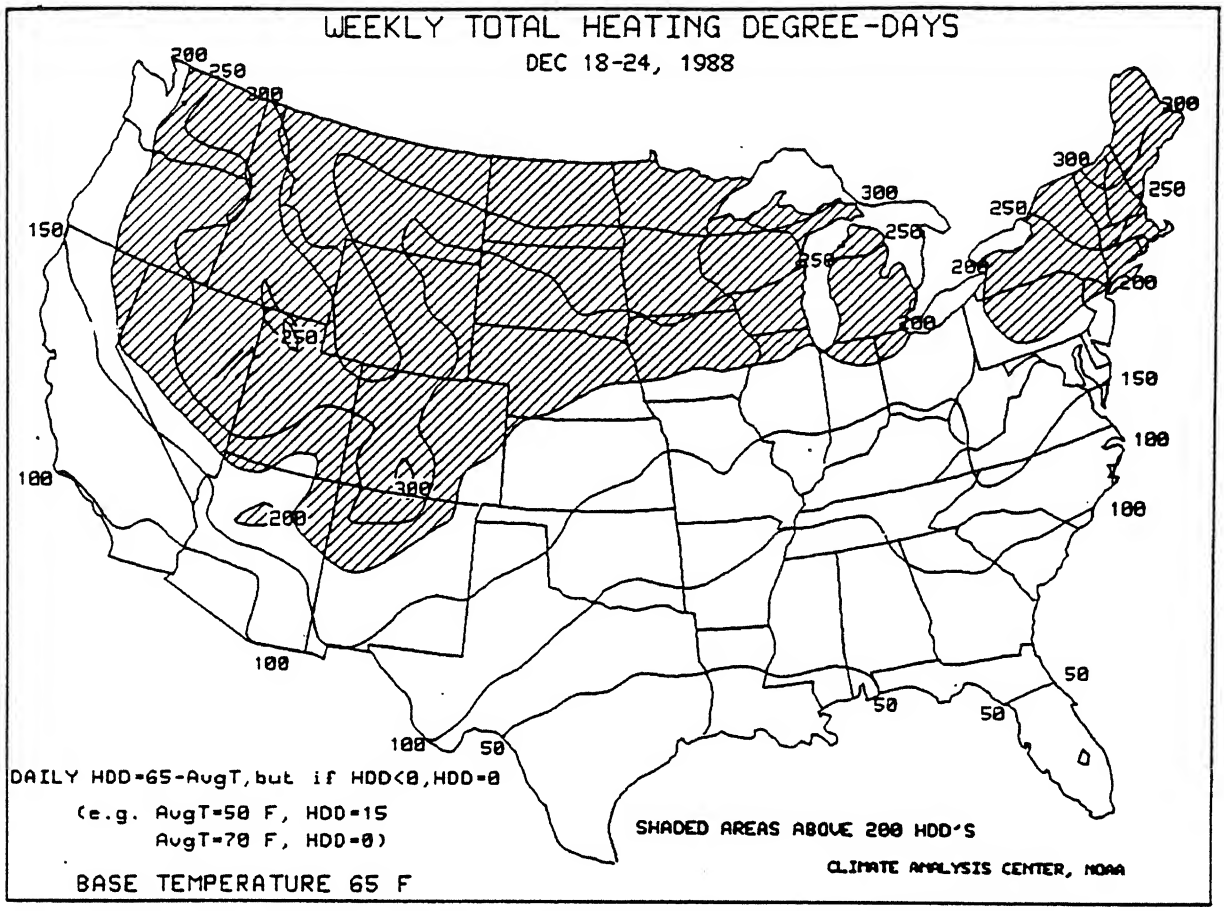


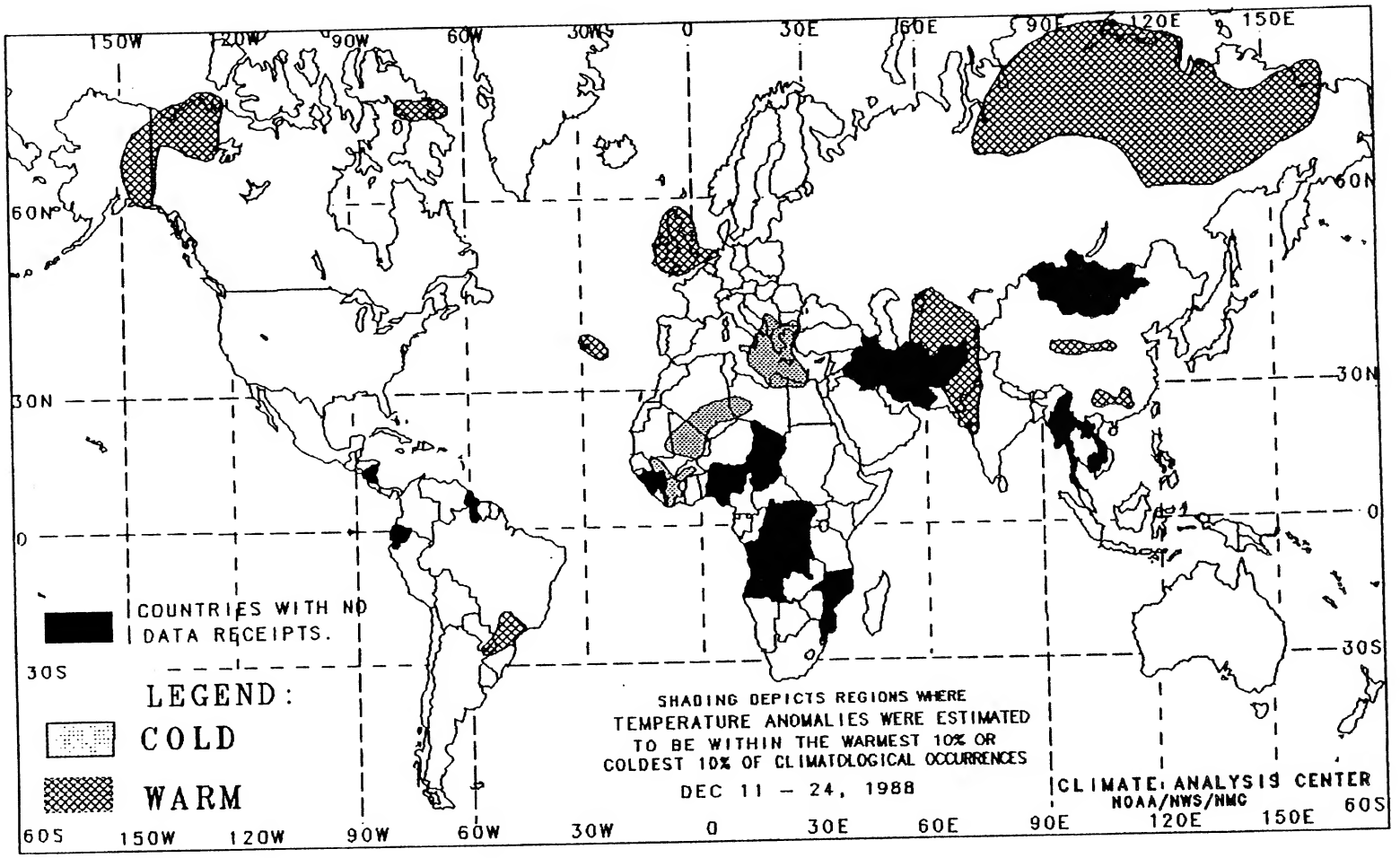
FIGURE 3



Compared to the previous two weeks, heating usage was significantly lower (top) as milder weather prevailed over the eastern two-thirds of the U.S. and reduced the weekly heating demand by 50-75 HDD's in the nation's midsection (bottom).

GLOBAL TEMPERATURE ANOMALIES

2 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

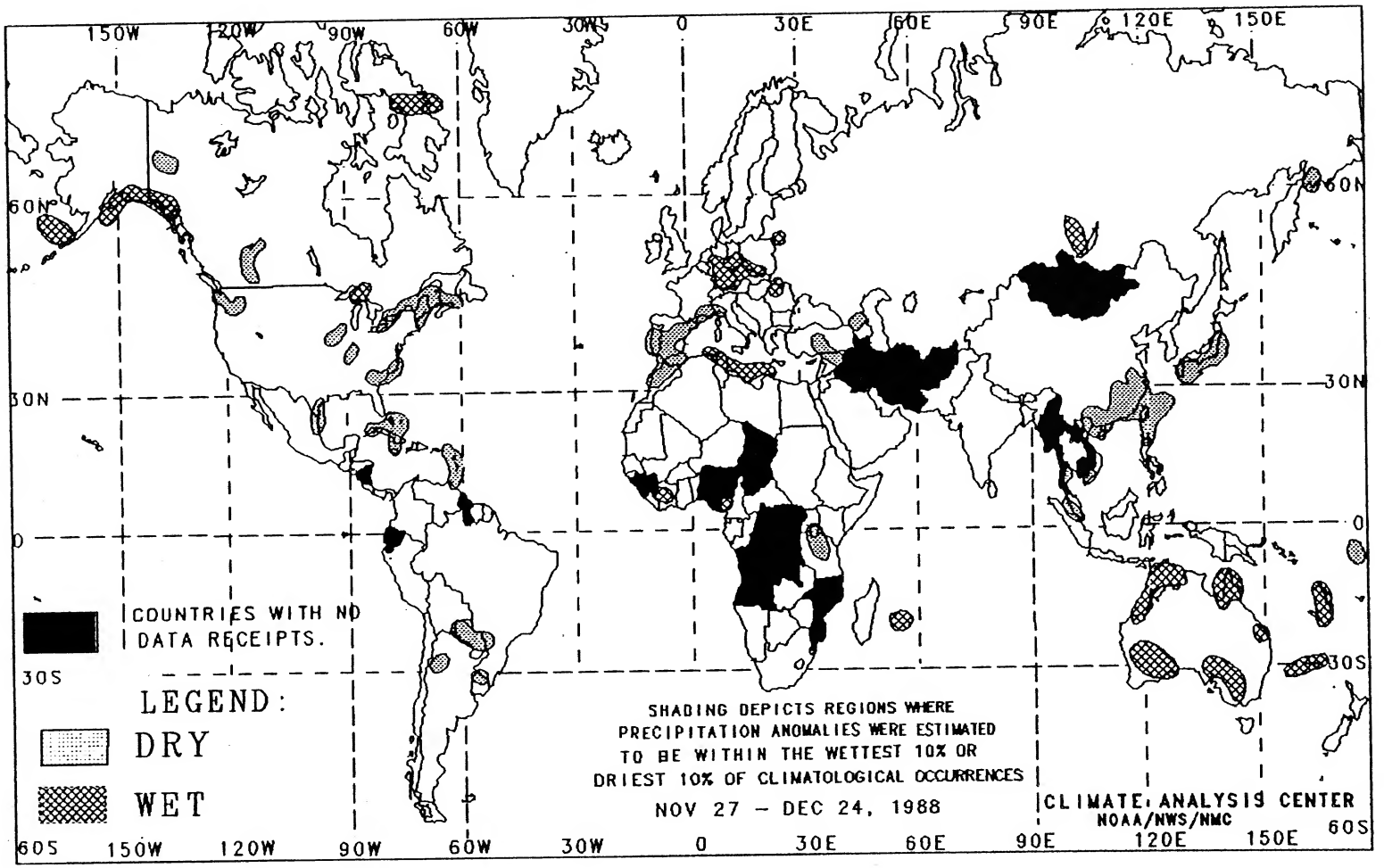
Temperature anomalies are not depicted unless the magnitude of temperature departures from normal exceeds 1.5°C.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining precentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

GLOBAL PRECIPITATION ANOMALIES

4 WEEKS



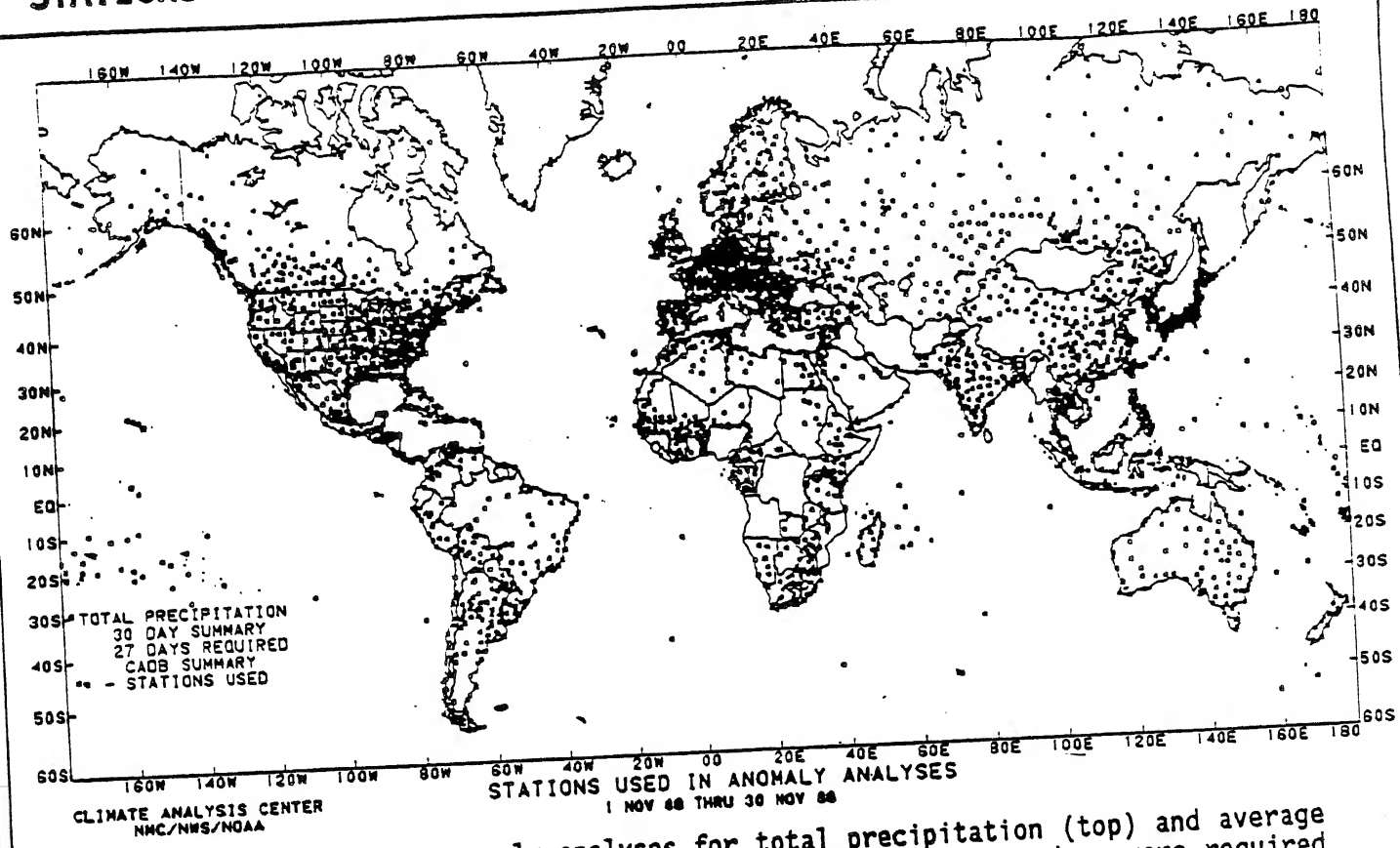
The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

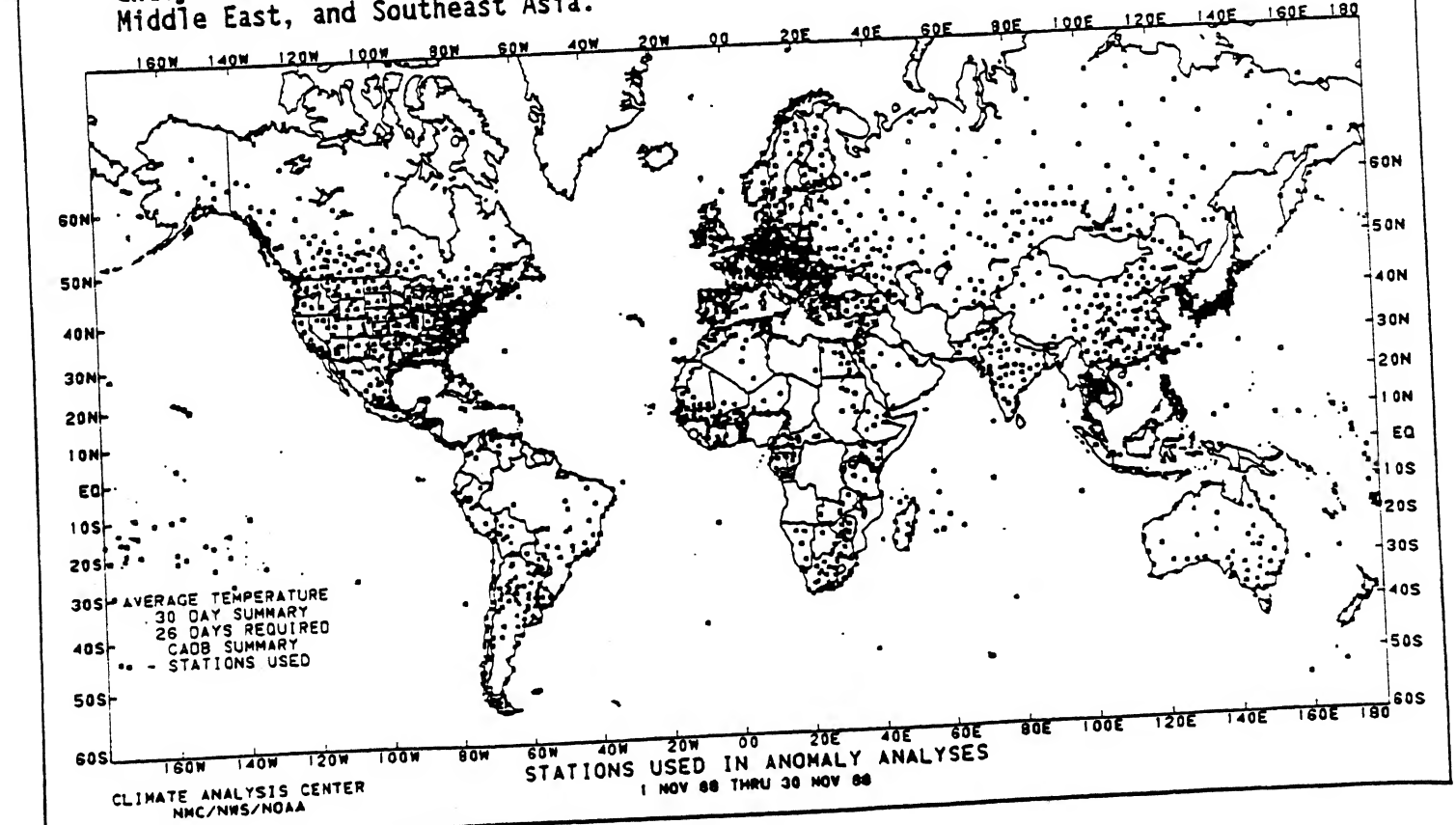
In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

STATIONS USED IN THE MONTHLY ANOMALY ANALYSES (NOVEMBER 1988)

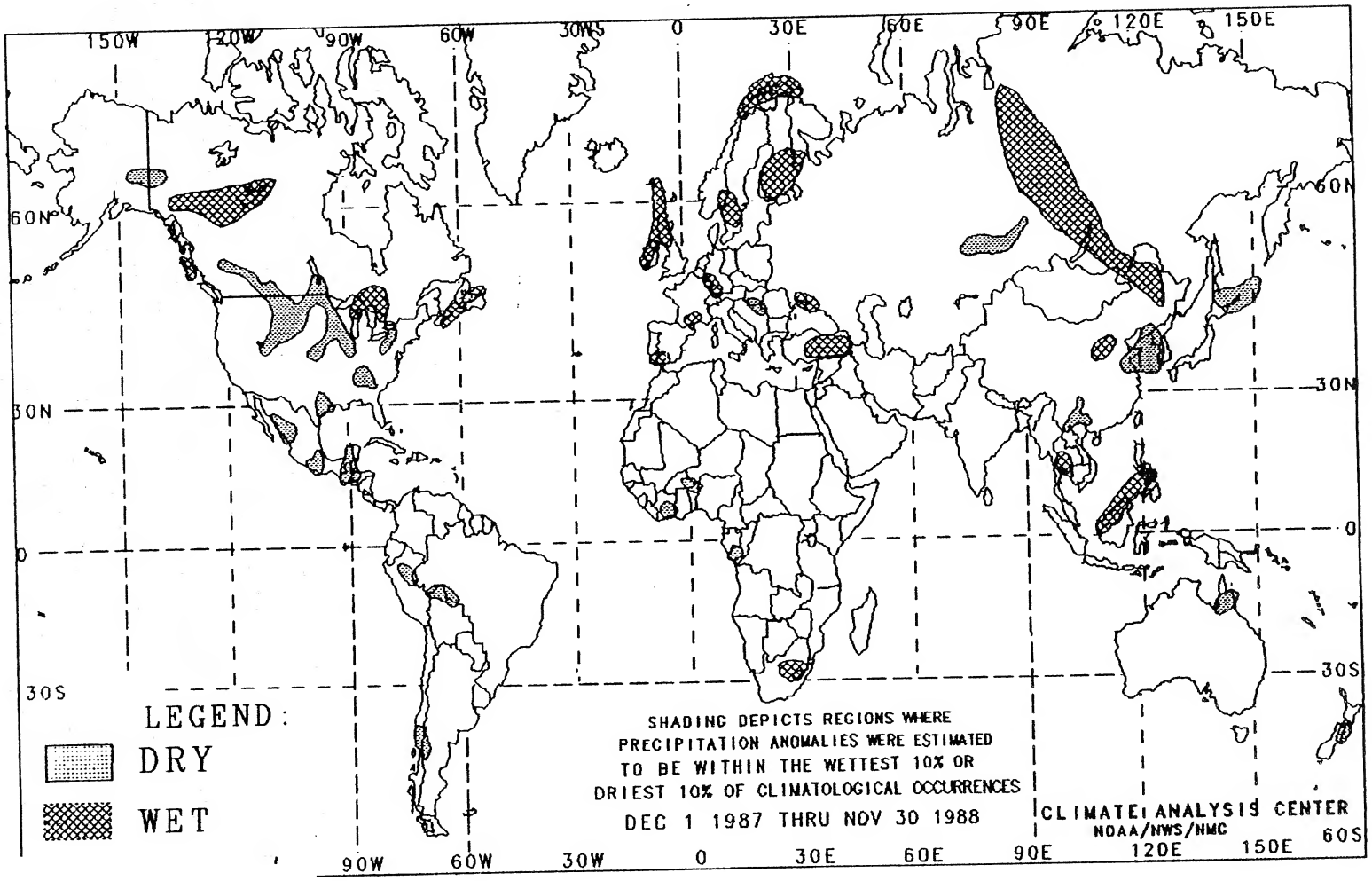


Stations used in the anomaly analyses for total precipitation (top) and average temperatures (bottom) during November 1988. 27 (26) or more days were required for inclusion in the monthly precipitation (average temperature) anomaly analyses. There were no data receipts for any stations in parts of Africa, the Middle East, and Southeast Asia.



GLOBAL PRECIPITATION ANOMALIES

12 MONTHS



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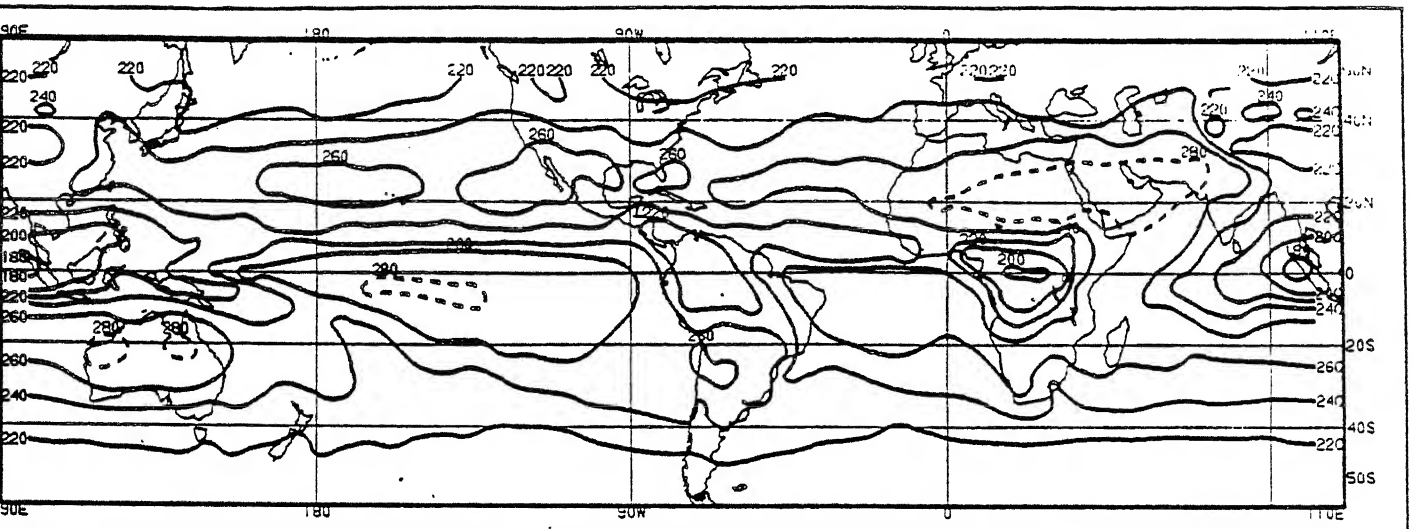
The chart shows general areas of twelve month precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

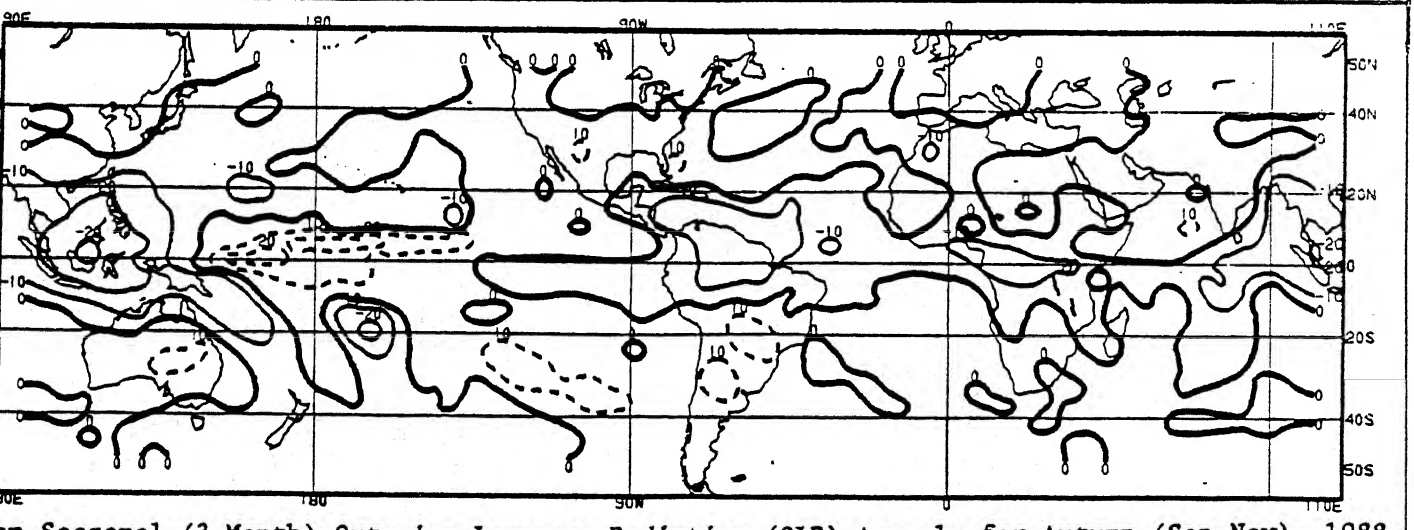
SEASONAL OUTGOING LONGWAVE RADIATION



Mean Seasonal (3-Month) Outgoing Longwave Radiation (OLR) for Autumn (Sep-Nov), 1988.

The mean seasonal (3-month) outgoing long wave radiation (OLR) as measured by the NOAA-9 AVHRR IR window channel by NESDIS/SRL (top). Data are accumulated and averaged over 2.5° areas to a 5° mercator grid for display. Contour intervals are 20 Wm^{-2}, and contours of 280 Wm^{-2} and above are dashed. In tropical areas (for our purposes 20°N-20°S) that receive primarily convective rainfall, a mean OLR value of less than 220 Wm^{-2} is associated with significant seasonal precipitation, whereas a value greater than 260 Wm^{-2} normally indicates little or no precipitation. Care must be used in interpreting this chart at higher latitudes, where much of the precipitation is non-convective, or in some tropical coastal or island locations, where the precipitation is primarily orographically induced. The approximate relationship between mean OLR and precipitation amount does not necessarily hold in such locations.

The mean seasonal (3-month) outgoing long wave radiation anomalies (bottom) are computed as departures from the 1974-1983 base period mean (1978 missing). Contour intervals are 15 Wm^{-2}, while positive anomalies (greater than normal OLR, suggesting less than normal cloud cover and/or precipitation) are dashed and negative anomalies (less than normal OLR, suggesting greater than normal cloud cover and/or precipitation) are solid.



an Seasonal (3-Month) Outgoing Longwave Radiation (OLR) Anomaly for Autumn (Sep-Nov), 1988.


Merry
Christmas